

Amendments to the Claims

Please amend the claims as follows.

1. (original) A method of determining the velocity ( $v$ ) of a vehicle having at least one pair of a front and a rear wheel which are spaced by a wheel spacing ( $B$ ), the method comprising for at least one pair of wheels:
  - a) determining front and rear wheel speed signals ( $\omega$ ) indicative of the time dependent behavior of the front and rear wheel speeds, respectively;
  - b) correlating the front and rear wheel speed signals ( $\omega$ ) in order to determine a specific correlation feature indicative of the time delay ( $\tau$ ) between the front wheel and rear wheel speed signals;
  - c) determining the velocity ( $v$ ) of the vehicle based on said correlation feature and the wheel spacing ( $B$ ).
2. (original) The method of claim 1, wherein the action of correlating is based on a correlation function ( $R$ ) of the front and rear wheel speed signals, said correlation function ( $R$ ) is a function of a time difference ( $\tau$ ), and the correlation feature is the specific time difference which corresponds to the maximum of said correlation function ( $R$ ), whereby the vehicle velocity ( $v$ ) is computed from the specific time difference.
3. (currently amended) The method of ~~any one of claims 1 or~~ claim 2, wherein the action of correlating comprises a compensation with a wheel speed signal ( $\omega$ ) of the front or the rear wheel such that the correlation feature remains unchanged with varying vehicle velocity ( $v$ ) but changes with varying wheel radius ( $r$ ) of the respective wheel.
4. (original) The method of claim 3, wherein the action of correlating is based on a correlation function ( $R$ ) of the front and rear wheel speed signals, said correlation function ( $R$ ) is a function of the reciprocal ( $1/(\omega \cdot r)$ ) of the product ( $\omega \cdot r$ ) of the known wheel speed signal ( $\omega$ ) and the respective unknown wheel radius ( $r$ ), and the

correlation feature is the specific wheel radius which corresponds to the maximum of the correlation function ( $R$ ), whereby the vehicle velocity ( $v$ ) is computed from the specific wheel radius ( $r$ ) and the corresponding wheel speed signal ( $\omega$ ).

5. (currently amended) The method of claim 1, wherein the correlation feature is obtained by
  - a) Fourier transforming the wheel speed signals ( $\omega$ ) to obtain Fourier transformed wheel speed signals ( $\Omega$ );
  - b) [[C]]calculating a phase function ( $\arg(\Omega_1(f)/\Omega_2(f))$ ) of the ratio of the Fourier transformed wheel speed signals ( $\Omega$ ) of the front and the rear wheel, wherein the slope of said phase function is the correlation feature indicative of the time delay ( $\tau$ ).
6. (currently amended) The method of ~~any one of claims 1 to~~ claim 5, wherein the front and rear wheel speed signals ( $\omega$ ) are transformed from angle domain to time domain by interpolation without aliasing effects.
7. (currently amended) The method of ~~any one of claims 1 to~~ claim 5, wherein the action of correlating is based on the reciprocals of the wheel speed signals ( $1/\omega$ ) to perform the action of correlating within the angle domain.
8. (currently amended) The method of ~~any one of the preceding claims~~ claim 1, wherein the radii of the front and the rear wheels ( $r$ ) are determined on the basis of the obtained vehicle velocity ( $v$ ).
9. (currently amended) The method of ~~any one of the preceding claims~~ claim 1, wherein the wheel speed signals ( $\omega$ ) are provided by wheel speed sensors of an antilock braking system (ABS).
10. (currently amended) The method of claim 8 or 9, wherein the absolute wheel radii thus determined are used for tire pressure determination.

11. (currently amended) The method of ~~any one of the preceding claims~~ claim 1, wherein the absolute velocity thus determined is used for road-friction monitoring.
12. (currently amended) The method of ~~any one of the preceding claims~~ claim 1, wherein the absolute velocity thus determined is used as input for control systems such as ABS, dynamic stability systems, traction control systems, anti-spin systems and AWD/4WD vehicles.
13. (original) A system for determining the velocity ( $v$ ) of a vehicle having at least one pair of a front and a rear wheel which are spaced by a wheel spacing ( $B$ ), the system comprising:
  - a) wheel speed sensors arranged to provide front and rear wheel speed signals ( $\omega$ ) indicative of the time dependent behavior of the front and rear wheel speeds, respectively;
  - b) a correlation unit arranged to correlate the front and rear wheel speed signals ( $\omega$ ) in order to determine a specific correlation feature indicative of the time delay ( $\tau$ ) between the front wheel and rear wheel speed signals; and to determine the velocity ( $v$ ) of the vehicle based on the wheel spacing ( $B$ ) and the correlation feature thus determined.
14. (original) A computer program product including program code for carrying out a method, when executed on a processing system, of determining the velocity ( $v$ ) of a vehicle having at least one pair of a front and a rear wheel which are spaced by a wheel spacing ( $B$ ), the program code being arranged to:
  - a) determine front and rear wheel speed signals ( $\omega$ ) indicative of the time dependent behavior of the front and rear wheel speeds, respectively;
  - b) correlate the front and rear wheel speed signals ( $\omega$ ) in order to determine a specific correlation feature indicative of the time delay ( $\tau$ ) between the front wheel and rear wheel speed signals;
  - c) determine the velocity ( $v$ ) of the vehicle based on said correlation feature and the wheel spacing ( $B$ ).

Please add new claim 15.

15. (new) The method of claim 9, wherein the absolute wheel radii thus determined are used for tire pressure determination.